

REMARKS

Claims 39, 40, 42-44, 49-50, 52-54, 56, and 61-66 are pending in this application. Claims 35-38 have been cancelled and claims 61-66 have been added by this amendment. Applicant reserves the right to reintroduce claims of comparable scope to the original claims in a continuation or other related application.

The Examiner stated that the amendments to page 13 at two locations, as made on page 2 of the preliminary amendment, have not been entered due to space limitations. It is assumed herein that the Examiner meant page 33 rather than page 13 (since no amendments to page 13 were made), and Applicant has provided a new amended paragraph herewith that includes the amendments to page 33 made in the preliminary amendment, but replaces the application numbers with the updated patent numbers.

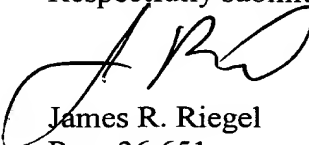
The claims are referred to herein as claims 35-60, as renumbered by the Examiner.

The Examiner rejected claims 35-38, 40-48, and 50-54 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 3, 4, 6, 20, 21, and 23 of U.S. Patent No. 5,825,308. Applicant does not necessarily believe that the pending claims are obvious in view of the patented claims, but to expedite prosecution, Applicant submits a terminal disclaimer herewith, and respectfully requests that the rejection be withdrawn.

The Examiner rejected claims 35-38, 40, 41, 45-48, 50, 51, and 55-60 as being unpatentable in view of Jacobus and Salcudean. The Examiner stated that claims 39, 42-44, 49, and 52-54 would be allowable if rewritten in independent form. To expedite prosecution, Applicant has amended the claims so that claims 42 and 52 are rewritten in independent form and substantially include the subject matter of all their intervening claims; claims 42 and 52 have not been narrowed, and are believed patentable. Other pending claims have been amended to conform to the rewritten claims. New claims 61 and 62 depend from claim 42 and new claims 64 and 65 depend from claim 52, and these new claims recite features that are or were recited in the previously pending claims. New claim 63 recites the subject matter of claims 35 and 39, where claim 39 was indicated to be allowable by the Examiner. New claim 66 recites subject matter from claims 45 and 49, where claim 49 was indicated to be allowable by the Examiner. Since the Examiner indicated that these claims would be allowable, Applicant respectfully requests that the rejection under 103 be withdrawn.

Applicant believes that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,



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MARKED-UP VERSION OF AMENDMENTS

In the Specification:

Replace the paragraph starting on page 33, line 20, with:

Mechanism 40 is preferably the five-member linkage 40 described above, but can also be one of several types of mechanisms. For example, mechanisms disclosed in [co-pending patent applications serial nos. 08/374,288, 08/400,233, 08/489,068, 08/560,091, 08/623,660, 08/664,086, 08/709,012, and 08/736,161] U.S. Patent Nos. 5,731,804, 5,767,839, 5,721,566, 5,805,140, 5,691,898, 6,028,593, 6,024,576, and 5,828,197, all incorporated by reference herein, can be included. Mouse 12 can alternatively be a puck, joystick, or other device or article coupled to linkage 40, as described above.

In the Claims:

Claims pending in this application are listed below. Claims changed by this amendment are labelled as "amended."

Please cancel claims 35-38 without prejudice.

39. (amended) A force feedback interface device as recited in claim [35] 42 further comprising an indexing button provided on said force feedback interface peripheral, said indexing button enabling an indexing mode when depressed by said user.

40. (amended) A force feedback interface device as recited in claim [35] 42 wherein said actuator is controlled by a local processor in response to signals received from said host computer.

Please cancel claim 41 without prejudice.

42. (amended) A force feedback interface device [as recited in claim 41] in communication with a host computer, the force feedback interface device comprising:
at least one sensor that detects a motion or position of a manipulandum of said force feedback interface device when manipulated by a user, wherein a location of a cursor displayed by said host computer is responsive to said manipulation of said manipulandum by said user;

at least one actuator operative to output forces to a user of said force feedback interface device; and

a force functionality button provided on said force feedback interface device and manipulatable by said user, wherein said force functionality button toggles the output of a force feedback sensation by said actuator when said cursor encounters a designated graphical object or region upon a graphical display of said host computer, said toggling based on said manipulation of said force functionality button by said user, wherein said force sensation is applied by said actuator when or after said force functionality button is depressed by said user, wherein said force feedback sensation is associated with a cursor crossing a border of an icon, and wherein said force feedback sensation is a resistive spring force resisting motion of said cursor into said icon.

43. A force feedback interface device as recited in claim 42 wherein said icon is selected by said cursor when said cursor moves into a predetermined threshold distance into said icon.

44. A force feedback interface device as recited in claim 42 wherein said spring force enables an isometric control mode, wherein an amount of penetration of the mouse against the spring force controls a speed of scrolling of a document displayed by said host computer.

Please cancel claims 45-48 without prejudice.

49. (amended) A method as recited in claim [45] 52 further comprising providing an indexing button on said force feedback interface peripheral, said indexing button enabling an indexing mode when depressed by said user.

50. (amended) A method as recited in claim [45] 52 wherein said actuator is controlled by a local processor in response to signals received from said host computer.

Please cancel claim 51 without prejudice.

52. (amended) A method [as recited in claim 51] for controlling a force feedback interface peripheral, said force feedback interface peripheral including a force functionality button, said method comprising:

providing a force feedback interface peripheral including at least one sensor and at least one actuator, said actuator operative to output forces to a user of said force feedback interface peripheral;

providing a button on said force feedback interface peripheral that can function as a force functionality button, said force functionality button manipulatable by said user;

enabling a cursor to be controlled on a host computer, the displayed location of said cursor being responsive to manipulation of a portion of said force feedback interface peripheral by said user; and

enabling said force functionality button to toggle the application of a force feedback sensation by said actuator when said cursor encounters a designated graphical object or region upon the graphical display of said host computer, said toggling based on said manipulation of said force functionality button by said user, wherein said force sensation is applied by said actuator when or after said force functionality button is depressed by said user, wherein said force feedback sensation is associated with a cursor crossing a border of an icon, and wherein said force feedback sensation is a resistive spring force resisting motion of said cursor into said icon.

53. A method as recited in claim 52 wherein said icon is selected by said cursor when said cursor moves into a predetermined threshold distance into said icon.

54. A method as recited in claim 52 wherein said spring force enables an isometric control mode, wherein an amount of penetration of the mouse against the spring force controls a speed of scrolling of a document displayed by said host computer.

Please cancel claim 55 without prejudice.

56. (amended) A force feedback interface device as recited in claim [55] 67 wherein said first force functionality mode is a pressure scrolling mode, wherein a spring force is output on said manipulum opposing the movement of said cursor through a border of said designated graphical object or region, and wherein a rate of scrolling of an object is controlled by an amount of said movement of said cursor.

Please cancel claims 57-60 without prejudice.

Please add the following claims:

61. (new) A force feedback interface device as recited in claim 42 wherein said button is a first button that can function as a first force functionality button, and further comprising:

a second button on said force feedback interface peripheral that can function as a second force functionality button, said second force functionality button manipulatable by said user, wherein manipulation of said second force functionality button by said user causes a second force

functionality mode of said force feedback interface device to be active, said second force functionality mode being different from said first force functionality mode.

62. (new) A force feedback interface device as recited in claim 61 wherein said second force functionality button toggles a pressure scrolling mode, wherein a spring force is output in said pressure scrolling mode on said manipulandum opposing the movement of said cursor through a border of a designated graphical object or region, and wherein a rate of scrolling of an object is controlled by an amount of said movement of said cursor.

63. (new) A force feedback interface device in communication with a host computer, the force feedback interface device comprising:

- at least one sensor that detects a motion or position of a manipulandum of said force feedback interface device when manipulated by a user, wherein a location of a cursor displayed by said host computer is responsive to said manipulation of said manipulandum by said user;

- at least one actuator operative to output forces to a user of said force feedback interface device;

- an indexing button provided on said force feedback interface peripheral, said indexing button enabling an indexing mode when depressed by said user; and

- a force functionality button provided on said force feedback interface device and manipulatable by said user, wherein said force functionality button toggles the output of a force feedback sensation by said actuator when said cursor encounters a designated graphical object or region upon a graphical display of said host computer, said toggling based on said manipulation of said force functionality button by said user.

64. (new) A method as recited in claim 52 wherein said button is a first button that can function as a first force functionality button, and further comprising providing a second button on said force feedback interface peripheral that can function as a second force functionality button, said second force functionality button manipulatable by said user, wherein manipulation of said second force functionality button by said user causes a second force functionality mode of said force feedback interface device to be active, said second force functionality mode being different from said first force functionality mode.

65. (new) A method as recited in claim 64 wherein said second force functionality button is enabled to toggle a pressure scrolling mode, wherein a spring force is output in said pressure scrolling mode on said manipulandum opposing the movement of said cursor through a border of a designated graphical object or region, and wherein a rate of scrolling of an object is controlled by an amount of said movement of said cursor.

66. (new) A method for controlling a force feedback interface peripheral, said force feedback interface peripheral including a force functionality button, said method comprising:

providing a force feedback interface peripheral including at least one sensor and at least one actuator, said actuator operative to output forces to a user of said force feedback interface peripheral;

providing a button on said force feedback interface peripheral that can function as a force functionality button, said force functionality button manipulatable by said user;

providing an indexing button on said force feedback interface peripheral, said indexing button enabling an indexing mode when depressed by said user;

enabling a cursor to be controlled on a host computer, the displayed location of said cursor being responsive to manipulation of a portion of said force feedback interface peripheral by said user; and

enabling said force functionality button to toggle the application of a force feedback sensation by said actuator when said cursor encounters a designated graphical object or region upon the graphical display of said host computer, said toggling based on said manipulation of said force functionality button by said user.